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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/628,618	07/28/2003	Hieronymus Andriessen	223592	5841
23460	7590	08/10/2005	EXAMINER	
LEYDIG VOIT & MAYER, LTD TWO PRUDENTIAL PLAZA, SUITE 4900 180 NORTH STETSON AVENUE CHICAGO, IL 60601-6780			XU, LING X	
			ART UNIT	PAPER NUMBER
			1775	

DATE MAILED: 08/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/628,618

Applicant(s)

ANDRIESSEN, HIERONYMUS

Examiner

Ling X. Xu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 July 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) 4-11 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 25-27 is/are allowed.
- 6) ☒ Claim(s) 1-3, 12-22 and 28-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

Response to Amendment

1. Applicant's amendment filed on 7/20/2005 has been entered.

Double Patenting

2. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

Claims 3, 14, 18-20 and 22 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 5, 15 and 20 of copending Application No. 10/629,242.

This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

Claim 5 of the copending application recites that same invention as that of recited in claim 3 of the present application. Claim 15 of the copending application recites that same invention as that of recited in claims 14 and 22 of the present application. Claim 20 of the copending application recites that same invention as that of recited in claim 18-20 of the present application.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2, 12-13, 15-17, 21 and 28-29 are rejected under 35 U.S.C. 102(b) as being anticipated by Vogel et al. (J. Phys. Chem. 1994, 98, p3183-3188).

Vogel discloses the sensitization of nano-porous metal oxide semiconductor such as titanium oxide, tin oxide, niobium oxide and tantalum oxide by quantum-sized cadmium sulfide, lead sulfide, or antimony sulfide (“metal chalcogenide nano-particles”) (abstract).

Since Vogel discloses the same metal oxide such as titanium oxide, tin oxide, niobium oxide and tantalum oxide and same metal chalcogenide such as quantum-sized cadmium sulfide, lead sulfide, antimony sulfide as claimed in the present application. The same metal oxide and metal chalcogenide would also have the same band gap as recited in claim 23.

The process of the sensitization includes dipping the nano-porous metal oxide in the metal chalcogenide solution several times (left column, page 3184), which is the same method as disclosed in the present application (see page 4 of the specification). Accordingly, the nano-porous metal oxide disclosed by Vogel is considered in-situ spectrally sensitized on the internal and external surface with metal chalcogenide nano-particles.

Vogel also discloses that the use of the sensitized nano-porous metal oxide as the electrode in the electrolyte containing $\text{KH}_2\text{PO}_4/\text{K}_2\text{HPO}_4$ (left column, page 3184). As disclosed in the specification page 9 of the present application, the process of adding phosphate to the

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nano-porous metal oxide is to rinse the metal oxide with an aqueous solution containing a phosphate or phosphoric acid. Accordingly, the nano-porous metal oxide of Vogel is considered to contain the phosphate after the metal oxide immerses in the aqueous electrolyte solution containing the phosphate/phosphoric acid solution depends on the pH of the solution.

Vogel further discloses the use of the semiconductor nano-porous metal oxide as a light-converting electrode in an electrochemical cells to generate photocurrent, see abstract and Figures 1, 3 and 5, which clearly indicates that the nano-porous metal oxide is used in an photovoltaic device.

Allowable Subject Matter

4. Claims 25-27 are allowed.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ling X. Xu whose telephone number is 571-272-1546. The examiner can normally be reached on 8:00 - 4:30 Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah D. Jones can be reached on 571-272-1535. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Ling X. Xu
Examiner
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